REMARKS / ARGUMENTS

This application is believed to be in condition for allowance because the claims, as amended, are believed to be non-obvious and patentable over the cited references. The following paragraphs provide the justification for this belief. In view of the following reasoning for allowance, the Applicant hereby respectfully requests further examination and reconsideration of the subject patent application.

1.0   Amendment to the Specification:

Applicants have amended paragraph [0099] of the specification (United States Patent Application Publication No. 20050058145) to replace a "TBD" placeholder for the serial number of a related patent application. In particular, the related application is entitled "A SYSTEM AND METHOD FOR PROVIDING HIGH-QUALITY STRETCHING AND COMPRESSION OF A DIGITAL AUDIO SIGNAL," and was filed on Sep. 10, 2003, and assigned Serial No. 10/660,325. The present amendment simply replaces "TBD" with "10/660,325." Therefore, no new matter is introduced by way of the above described amendment.

2.0   Rejections under 35 U.S.C. §102(b):

In the Office Action of December 26, 2007, claims 1, 7-11 and 21 were rejected under 35 U.S.C. §102(b), as being anticipated by Hardwick et al., U.S. Patent 5,649,050, hereinafter "*Hardwick*."

A rejection under 35 U.S.C. §102(b) requires that the Applicant's invention was "patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States." To establish that a patent describes the Applicant's invention, *all of the claimed elements of an Applicant's invention must be considered, especially where they are missing from the prior art*. If a claimed element is not taught in the referenced patent,

then a rejection under 35 U.S.C. §102(b) is not proper, as the Applicant's invention can be shown to be patentably distinct from the cited reference.

2.1   Rejection of Independent Claim 1 under 35 U.S.C. §102(b):

In the Office Action of December 26, 2007, independent claim 1 was rejected under 35 U.S.C. §102(b) based on the argument that the *Hardwick* reference discloses the Applicants claimed "system for providing adaptive playback of an audio signal..."

In particular, the Office Action suggests that the *Hardwick* reference discloses each element of the claimed system, including the claimed evaluation of buffer levels for determining whether to stretch or compress playback of the audio data contained in the signal buffer. In response, Applicants have added narrowing amendments to claim 1 to overcome the rejection of claim 1 over the *Hardwick* reference.

In particular, Applicants have amended claim 1 to further clarify when and under what conditions stretching is to be applied to the contents of the signal buffer, in combination with a maximum delay period for receiving missing data packets that is determined based on the level of the signal buffer. As discussed in further detail below, Applicants believe that the above summarized amendments sufficiently differentiate the claimed system from the *Hardwick* reference that the claimed system is patentable over the *Hardwick* reference.

In general, as discussed by the Office Action, the *Hardwick* reference describes various techniques for ensuring that a buffer located between two transceivers neither overflows or becomes empty. The *Hardwick* reference generally accomplishes this goal by either transforming data frames in the buffer to decrease the number of frames in the buffer when the buffer level is above a first threshold, or by transforming data frames in the buffer to increase the number of frames in the buffer when the buffer level is below a second threshold. See, for example, COL. 10, lines 1-59 of the *Hardwick* reference.

In contrast, the claimed system includes additional elements not considered by the *Hardwick* reference, and determines stretching of the buffer contents based on different criteria than describe by the *Hardwick* reference.

In particular, the system as claimed, now includes a limitation wherein the signal buffer is analyzed "***to determine whether any data packets are missing***, having not been received into the signal buffer by an expected arrival time..." Then, having made this determination, the claimed system determines "a ***maximum delay period*** for receiving any missing data packets ***based on a current level of the signal buffer***." In other words, the maximum delay period for any particular missing packet will vary depending upon the current level of the signal buffer. Note that is limitation for determining a packet delay period differs significantly from conventional "late loss" decisions for a packet, where packets are declared as "lost" when they are not received by a particular delay time regardless of packet receipt order. Further, the claimed maximum delay period based on buffer levels differs substantially from the *Hardwick* reference which fails to provide any suggestion of determining allowable packet delay times based on a current level of the buffer.

Next, the Applicants have further amended claim 1 such that any stretching of the buffer contents for playback is dependent upon whether there are any missing data packets, and on the claimed maximum delay period for receiving those missing packets. In particular, the limitation relating to stretching now includes the following novel language:

> "***stretching at least part of the signal preceding the missing data packets*** present in the signal buffer, ***until any of receiving the missing data packets and exceeding the maximum delay period***, when the analysis of the contents of the signal buffer indicates that the length of the signal in the signal buffer is less than a predetermined threshold..." (emphasis added)

In other words, the above quoted limitation should be interpreted as stretching only some portion of the signal ***preceding*** missing data packets until either those packets are

received *or the maximum delay period has been exceded*, with that stretching only being performed when the length of the signal in the signal buffer is less than a predetermined threshold.

In contrast, the *Hardwick* reference simply stretches the contents of the buffer to ensure that if there are not enough samples, than the existing samples are transformed to increase their number to the expected number of samples. See, for example, COL. 10, lines 4--45 of the *Hardwick* reference. As such, it should be clear that the claimed stretching limitation differs substantially from the techniques disclosed by the *Hardwick* reference.

Therefore, in view of the preceding discussion, it should be clear that the claimed system, as amended, has elements not disclosed in the *Hardwick* reference, and that the claimed system is therefore not anticipated by the *Hardwick* reference. Consequently, the rejection of claim 1, as amended, under 35 U.S.C. §102(b) is no longer proper. Consequently, the Applicants respectfully request reconsideration of the rejection of claim 1, and of the claims dependent therefrom, under 35 U.S.C. §102(b) in view of the language of claim 1, as amended. In particular, claim 1, as amended, recites the following novel language:

A system for providing adaptive playback of an audio signal received *across a packet-based network*, comprising:
storing data packets comprising a received audio data signal to a signal buffer;
outputting parts of the signal present in the signal buffer as needed for signal playback;
analyzing the data packets contained in the signal buffer to determine whether any data packets are missing, having not been received into the signal buffer by an expected arrival time;
determining a maximum delay period for receiving any missing data packets based on a current level of the signal buffer;

stretching at least part of the signal preceding the missing data packets present in the signal buffer, *until any of receiving the missing data packets and exceeding the maximum delay period*, when the analysis of the contents of the signal buffer indicates that the length of the signal in the signal buffer is less than a predetermined threshold; and

compressing at least part of the signal present in the signal buffer when the analysis of the contents of the signal buffer indicates that the length of the signal in the signal buffer is greater than a predetermined threshold." (emphasis added)

2.2   Rejection of Independent Claim 8 under 35 U.S.C. §102(b):

In the Office Action of December 26, 2007, independent claim 8 was rejected under 35 U.S.C. §102(b) based on the argument that the *Hardwick* reference discloses the Applicants claimed "…system for providing an adaptive playback of received frames of an audio signal transmitted across a packet-based network…"

In particular, the Office Action suggests that the *Hardwick* reference discloses each element of the claimed system, including the claimed evaluation of buffer levels for determining whether to stretch or compress playback of the audio data contained in the signal buffer. In response, Applicants have added narrowing amendments to claim 8 to overcome the rejection of claim 8 over the *Hardwick* reference.

In particular, Applicants have amended claim 8 to further clarify when and under what conditions stretching is to be applied to the contents of the signal buffer, in combination with a maximum delay period for receiving missing data packets that is determined based on the level of the signal buffer. As discussed in further detail below, Applicants believe that the above summarized amendments sufficiently differentiate the claimed system from the *Hardwick* reference that the claimed system is patentable over the *Hardwick* reference.

In general, as discussed by the Office Action, the *Hardwick* reference describes various techniques for ensuring that a buffer located between two transceivers neither overflows or becomes empty. The *Hardwick* reference generally accomplishes this goal by either transforming data frames in the buffer to decrease the number of frames in the buffer when the buffer level is above a first threshold, or by transforming data frames in the buffer to increase the number of frames in the buffer when the buffer level is below a second threshold. See, for example, COL. 10, lines 1-59 of the *Hardwick* reference.

In contrast, the claimed system includes additional elements not considered by the *Hardwick* reference, and determines stretching of the buffer contents based on different criteria than describe by the *Hardwick* reference.

In particular, the system as claimed, now includes a limitation wherein the signal buffer is analyzed "any data frames are missing ***due to corresponding data packets having not been received by an expected arrival time***..." Then, having made this determination, the claimed system determines "a ***maximum delay period*** for receiving any missing data packets ***<u>based on a current level of the signal buffer</u>***." In other words, the maximum delay period for any particular missing packet will vary depending upon the current level of the signal buffer. Note that is limitation for determining a packet delay period differs significantly from conventional "late loss" decisions for a packet, where packets are declared as "lost" when they are not received by a particular delay time regardless of packet receipt order. Further, the claimed maximum delay period based on buffer levels differs substantially from the *Hardwick* reference which fails to provide any suggestion of determining allowable packet delay times based on a current level of the buffer.

Next, the Applicants have further amended claim 8 such that any stretching of the buffer contents for playback is dependent upon whether there are any missing data packets, and on the claimed maximum delay period for receiving those missing packets. In particular, the limitation relating to stretching now includes the following novel language:

> "*stretching and outputting one or more decoded frames <u>preceding the
> missing data packets</u>* in the signal buffer, *until any of receiving the missing
> data packets and exceeding the maximum delay period*, when the analysis of
> the contents of the signal buffer indicates that the length of the decoded frames in
> the signal buffer is less than the predetermined minimum buffer size..." (emphasis
> added)

In other words, the above quoted limitation should be interpreted as stretching only
some portion of the signal *preceding* missing data packets until either those packets are
received *or the maximum delay period has been exceded*, with that stretching only
being performed when the length of the signal in the signal buffer is less than a
predetermined threshold.

In contrast, the *Hardwick* reference simply stretches the contents of the buffer to
ensure that if there are not enough samples, than the existing samples are transformed to
increase their number to the expected number of samples. See, for example, COL. 10,
lines 4--45 of the *Hardwick* reference. As such, it should be clear that the claimed
stretching limitation differs substantially from the techniques disclosed by the *Hardwick*
reference.

Therefore, in view of the preceding discussion, it should be clear that the claimed
system, as amended, has elements not disclosed in the *Hardwick* reference, and that the
claimed system is therefore not anticipated by the *Hardwick* reference. Consequently, the
rejection of claim 8, as amended, under 35 U.S.C. §102(b) is no longer proper.
Consequently, the Applicants respectfully request reconsideration of the rejection of
claim 8, and of the claims dependent therefrom, under 35 U.S.C. §102(b) in view of the
language of claim 8, as amended. In particular, claim 8, as amended, recites the following
novel language:

> "A system for providing an adaptive playback of received frames of an audio
> signal transmitted across a packet-based network, comprising:

receiving and decoding data frames of an audio signal transmitted across a packet-based network;

storing the decoded data frames to a signal buffer;

analyzing the contents of the signal buffer to determine whether any data frames are missing *due to corresponding data packets having not been received by an expected arrival time*;

determining a maximum delay period for receiving any missing data packets based on a current level of the signal buffer;

outputting one or more of the decoded frames present in the signal buffer when the analysis of the contents of the signal buffer indicates that the length of the signal in the signal buffer is between a predetermined minimum and a predetermined maximum buffer size;

stretching and outputting one or more decoded frames preceding the missing data packets in the signal buffer, *until any of receiving the missing data packets and exceeding the maximum delay period*, when the analysis of the contents of the signal buffer indicates that the length of the decoded frames in the signal buffer is less than the predetermined minimum buffer size; and

compressing and outputting one or more decoded frames in the signal buffer when the analysis of the contents of the signal buffer indicates that the length of the decoded frames in the signal buffer is greater than the predetermined maximum buffer size." (emphasis added)

3.0   Rejection of Dependent Claims 2-7, 9-17, 19 and 21:

In general, the Office Action rejected dependent claims 2-7, 9-17, 19 and 21 under 35 U.S.C. §103(a) over the *Hardwick* reference in combination with various other references. Specifically, the Office Action suggests that independent claims 1 and 8 are disclosed by the *Hardwick* reference, while the various dependent claims are disclosed in view of the *Hardwick* reference in further view of various additional references.

However, it should be noted that as discussed in the preceding paragraphs, independent claims 1 and 8, as amended, are believed to be patentable under 35 U.S.C. §102(b). Further, claims 2-7, 9-17, 19 and 21 depend from these allowable claims.

Consequently, because there is no valid rejection of the parent claims (claims 1, and 8), the use of additional references to address a particular feature of a dependent claim is insufficient to provide valid grounds for rejection of the dependent claim (claims 82-7, 9-17, 19 and 21). Therefore, as there is no valid rejection of claims 1 and 8, the Applicants respectfully request reconsideration of the rejection of claims 2-7, 9-17, 19 and 21 under 35 U.S.C. §103(a) based on the novel language of independent claims 1, and 8, respectively, as cited above.

CONCLUSION

In view of the above discussion, it is respectfully submitted that claims 1-21 are in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of claims 1-17, 19 and 21, and objection to claims 18 and 20, and to pass this application to issue at the earliest opportunity. Additionally, in an effort to further the prosecution of the subject application, the Applicant kindly invites the Examiner to telephone the Applicant's attorney at (805) 278-8855 if the Examiner has any additional questions or concerns.

Respectfully submitted,

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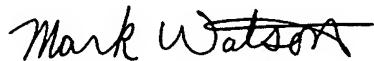
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